

# CA III (E-19): sc-50715

## BACKGROUND

Carbonic anhydrases (CAs) are members of a large family of zinc metalloenzymes that catalyze the reversible hydration of carbon dioxide. CAs are involved in a variety of biological processes, including respiration, calcification, acid-base balance, bone resorption, and the formation of aqueous humor, cerebrospinal fluid, saliva, and gastric juice. They show extensive diversity in distribution and in their subcellular localization. CA III (carbonic anhydrase III), also known as Car3 or CA3, is a 260 amino acid cytoplasmic protein that is specifically expressed in muscle. Belonging to the  $\alpha$ -carbonic anhydrase family, CA III is activated by proton donors such as imidazole and dipeptide histidylhistidine, and is inhibited by coumarins and sulfonamide derivatives such as acetazolamide.

## REFERENCES

1. Heath, R., et al. 1985. Evaluation of carrier detection of Duchenne muscular dystrophy using carbonic anhydrase III and creatine kinase. *Am. J. Med. Genet.* 21: 291-296.
2. Edwards, Y.H., et al. 1988. The gene for human muscle specific carbonic anhydrase (CA III) is assigned to chromosome 8. *Ann. Hum. Genet.* 50: 41-47.
3. Beechey, C., et al. 1990. Mapping of mouse carbonic anhydrase-3, Car-3: another locus in the homologous region of mouse chromosome 3 and human chromosome 8. *Genomics* 6: 692-696.
4. Igarashi, S., et al. 1992. Comparison of the distribution of carbonic anhydrase isozymes (CA I, CA II, CA III) in the rat gastrointestinal tract. *J. Vet. Med. Sci.* 54: 535-539.
5. Mahieu, I., et al. 1995. Localisation and characterisation of carbonic anhydrase isozymes (CA I, CA II, CA III and CA IV) in an umbilical vein endothelial cell line (EA-hy926). *Biochem. Soc. Trans.* 23: 308S.

## CHROMOSOMAL LOCATION

Genetic locus: CA3 (human) mapping to 8q21.2; Car3 (mouse) mapping to 3 A1.

## SOURCE

CA III (E-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of CA III of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-50715 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

CA III (E-19) is recommended for detection of CA III of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

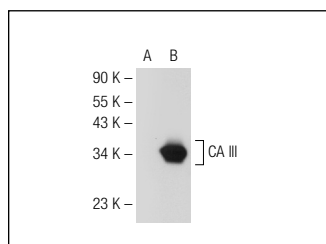
CA III (E-19) is also recommended for detection of CA III in additional species, including canine.

Suitable for use as control antibody for CA III siRNA (h): sc-60309, CA III siRNA (m): sc-60310, CA III shRNA Plasmid (h): sc-60309-SH, CA III shRNA Plasmid (m): sc-60310-SH, CA III shRNA (h) Lentiviral Particles: sc-60309-V and CA III shRNA (m) Lentiviral Particles: sc-60310-V.

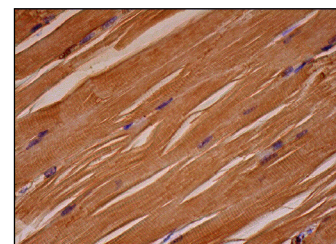
Molecular Weight of CA III: 28 kDa.

Positive Controls: rat skeletal muscle extract: sc-364810 or CA III (h): 293T Lysate: sc-158315.

## DATA



CA III (E-19): sc-50715. Western blot analysis of CA III expression in non-transfected: sc-117752 (A) and human CA III transfected: sc-158315 (B) 293T whole cell lysates.



CA III (E-19): sc-50715. Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes.

## SELECT PRODUCT CITATIONS

1. Kharbanda, K.K., et al. 2009. Proteomics reveal a concerted upregulation of methionine metabolic pathway enzymes, and downregulation of carbonic anhydrase-III, in betaine supplemented ethanol-fed rats. *Biochem. Biophys. Res. Commun.* 381: 523-527.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.



Try **CA III (F-10): sc-373729** or **CA III (B-2): sc-398369**, our highly recommended monoclonal alternatives to CA III (E-19).